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221 (3) When the first rains come, the soil of both the seed bed and the fields are worked up with a hoe so that all vegetable matter is buried and all weeds turned under.

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[417] (4) If possible the land is fertilized. Under "ideal" circumstances cattle are penned nightly over the area by means of a small temporary corral. The corral may be maintained for a long period over the seed bed, but on the field it is moved frequently so that the whole area is fertilized. Generally the resulting manure is left exposed to the sun and rain until planting time. However, this "ideal" method of fertilization is rare. A very large number of tobacco cultivators have no cattle—they are too poor and their operations are too small for livestock. Most cattle are held by fazendéiros (ranchers) who do not themselves grow tobacco. Moreover, the intensiveness of cultivation keeps the cattle population too small to provide enough manure for all local needs. Usually it is necessary to buy fertilizer. Cattle manure is sometimes purchased from a local fazendéiro. More and more, however, the tobacco cultivators are dependent upon cattle, or better still, goat manure which is trucked into the Recôncavo from the sertão. The manure is spread over the seed bed to a depth of about one inch and over the field in such depth as the quantity allows.

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221 (5) From mid-April to the end of May, depending upon the weather and the condition of the tobacco field, the seeds are planted. Almost without exception the seeds are taken from completely exhausted tobacco plants of the previous year, plants no longer able to produce salable leaf. The soil is broken open and loosened, and the seeds are sown directly into the fertilizer. Since the fertility of the seeds is very low, they are sown very thickly. The seed bed is fenced but is rarely covered. In sixty to seventy days the seedlings are ready for transplanting.

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244 still producing, they are carefully left in place--and narrow, shallow trenches eighteen inches or two feet apart are dug across the field. Segments of manioc stalk, freshly cut and two to four inches long, are planted in the trenches and covered.

(2) When the manioc appears, the plants are slightly hilled, and the field is kept clean.

(3) Any time after six months, but if conditions are not too pressing after nine months, the roots are dug up with a hoe. The disposition of the manioc roots will be discussed in a later section on processing.

(4) The field is re-planted to manioc until it will no longer produce a reasonable yield--one to four years depending upon the fertility.[4]

(5) The field is abandoned to wild vegetation and used as a rough pasture, or, if land is in very short supply, it is fertilized and planted to tobacco.

There are a number of problems which lead to departures from the ideal system of cultivation discussed above:

(1) In many areas where the intensity of cultivation is extreme, no second growth is available, and it is necessary to take fields directly from the cultivation of manioc, or other crops, to the planting of tobacco. It is important to remember that by no means all the soils of the tobacco-manioc region are suitable for tobacco cultivation, even [134] in such favorable centers as Cruz das Almas or São Gonçalo. Only the lighter, sandier soils of the hill tops and upper slopes and occasionally the porous soils of the basins are used for tobacco. These tobacco soils are popularly considered to be "poor," because crops other than tobacco or manioc do not thrive upon them.[5]

[237] (2) A key problem in the main areas of tobacco-manioc cultivation

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249 is fertilizer. Most of the manure is purchased with money borrowed from
244 the tobacco buyers or local merchants. The rise and fall of the produc-
• 237 tion, yield, and quality of tobacco in the various municipios of the Recôncavo can be explained to a considerable degree by two factors: (1) the availability of loan capital, and (2) the variation in precipitation. Probably the local supply of capital is more variable than the rainfall. Moreover, the quality of the manure available is usually poor. The manure of grass-fed cattle is a mediocre fertilizing agent, and probably the manure produced from the capoéira de caatinga upon which most cattle feed is even more inferior. Goat manure is preferred, because it is believed that it produces both a larger crop and a higher quality leaf, but it is very expensive. Because those who can afford goat manure usually are also the more efficient and careful cultivators, it is difficult to be sure whether it is superior fertilizer or better care which produces the quality leaf.

The manure which is secured from sources within the tobacco-manioc zone has almost invariably deteriorated because it has been left for long periods in the sun and rain. The more expensive fertilizer imported from the sertão is of a better quality, both because it comes from a drier zone and has thus suffered from less leaching in the corral and because it is kept in piles so that only the surface material is open to the elements.

In general every possible cruzeiro that can be begged or borrowed is spent for manure, but if none can be bought, the cultivator will haul black soil (crystalline massapê) from the bottom lands and spread it over his field. Failing that, he will plant without fertilizer in a desperate attempt to produce a crop which will enable him to eke out the following year. Even if relatively fresh soil with a good growth of capoéira is available, the cultivator can produce only a very small

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249 crop of poor tobacco without the application of manure. Commercial
244 fertilizers are beyond the means of all but a very small minority of
• 237 cultivators. Those large growers who have experimented with commercial fertilizers report unfavorable results, presumably because of excessive leaching in the porous soils.

249 (3) The system of seed selection is illustrative of the general crudity of cultivation. As indicated above, the seeds are taken from the old and repeatedly harvested plants of the preceding season. The only criterion for selection is survival--the seed plant continued to produce longer than the rest of the crop. This does not mean that it produced more leaf or better quality--indeed, the opposite is often
[654 the case. Occasionally better seeds are available from the federal or
242] state government, but the cultivators take little interest.

(4) The practice of harvesting the entire stalk or shoot at one time increases the variation in quality, since there are appreciable differences in the stages of development of the leaves. Immature leaves do not cure properly, while overripe leaves will produce only inferior grades.

249 (5) The primitive methods of drying and fermenting further re-
276 duce the quality of the leaf. Where the leaves are dried indoors over the fire, they acquire a smoky character. Frequently the debts of the
[424 cultivator force him to sell part of his crop prematurely so that a bulk large enough for fermentation is not assembled. On the other hand, if a large bulk of leaf is accumulated for curing and fermentation, there is always the risk of scorching, since thermometers are never used to check the temperature. A common abuse, and a costly one to the cultivator, results from delay in stringing the leaf up to dry. If the freshly cut leaves are allowed to remain piled in the sun before hanging, the green color is fixed. This damage cannot be

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000 Footnotes - Chapter VI

[124] [129] [114] [1]The discussion of the cultivation of tobacco and manioc is based upon the following sources: (1) private conversations with Mr. G. G. Jay, a tobacco buyer and grower of long experience in Bahia and in other regions of South America; (2) Walter Alberto Egler, "Aspectos Gerais da Cultura do Fumo na Região do Recôncavo na Bahia," Boletim Geográfico, Vol. X, No. 111 (November-December, 1952), pp. 679-688; (3) general field observations throughout the zone, except in Coração de Maria and Catu, and, during 1953-1954, detailed observations in São Gonçalo and in Cruz das Almas.

[804] [2]Tarefa means "a task," "a day's work," or "a piece of work," but it is also an antique unit of area which is the folk-unit of area throughout much of Brazil. Its size varies from place to place, but the tarefa baiana equals 0.4356 hectares. In many areas one tarefa is considered to be the usual size of the tobacco planting of one man, but it is obvious from a comparison of the labor force and area in tobacco that in many areas the plantings per person must run much larger. In any case, the individual plots are very likely to be one tarefa each.

[3]In many areas the tree stumps have entirely disappeared as a result of the intensive cultivation, which severely restricts the size of the wild vegetation which can develop during the fallow period.

[114] [243] [4]This interpretation differs, at least in emphasis, from that of Walter Alberto Egler, op. cit., pp. 679-688. He suggests as the characteristic sequence, tobacco, corn and/or beans, and then manioc. Undoubtedly this sequence is important, but the field investigation for the present study revealed that the direct replacement of tobacco with manioc is more characteristic.

[237] [5]However, tobacco does not produce well on these poor soils unless manure is used, and even the yields of manioc are low unless it is planted in a field where there has been a relatively recent application of manure.

[244] [6]The seed for corn, which is edible, has value in itself. The stalk of manioc has no utility except to reproduce the crop. Thus when manioc is planted, the cultivator invests only his labor and the questionable value of the land.

[7]See section by George Wythe in Simon Kuznets, Wilbert E. Moore, and Joseph J. Spengler (eds.), Economic Growth: Brazil, India, Japan, p. 34.